

## ACEC CHARACTERISTICS AND DESIGNATION

An Area of Critical Environmental Concern (ACEC) is a region with unique natural and human resource values that are worthy of concern and protection. The Parker River/Essex Bay Area of Critical Environmental Concern was designated in 1979 as the second coastal ACEC in Massachusetts. This ACEC includes 25,500 acres of estuarine, riverine, salt marsh, and barrier beach ecosystems and is located within the municipalities of Newbury, Rowley, Ipswich, Essex and Gloucester. Table 1 summarizes town areas based on their approximate acreage within the ACEC boundary and this acreage as a percentage of total ACEC area.

<b>Table 1. Acreage and percentage of towns within the ACEC</b>		
<i>Note: These numbers were obtained through analysis of the MassGIS database ACEC area is calculated to be 25,500 acres</i>		
<b>Town</b>	<b>Approximate acreage</b>	<b>Approximate percentage of ACEC</b>
Newbury	7,387	29
Rowley	3,898	15
Ipswich	9,866	39
Essex	3,435	14
Gloucester	912	4

On the coast, the ACEC boundary (Figure 1) follows the mean low water line from the northern edge of the Parker River National Wildlife Refuge south to Gloucester. Inland, circling the Plum Island Sound and Essex Bay estuaries, the boundary is primarily defined by the 10-foot contour line. In addition to the important ecological functions that ACEC resources provide, they also contribute directly to local economies through commercial and recreational shellfishing, fishing, water sports, beach activities, and the scenic character that invites residents and ecotourism to the area.

The Massachusetts Department of Environmental Management (DEM) administers the ACEC Program and coordinates closely with the Massachusetts Coastal Zone Management (CZM) office regarding all coastal ACECs. A decision by the Secretary of Environmental Affairs to designate an area as an ACEC carries with it a requirement that all state environmental agencies acquire information about the resources of the ACEC; preserve, restore, or enhance the resources of the area; and ensure that activities within the ACEC minimize adverse effects on the natural and cultural values of the area. This designation highlights the importance and focuses attention on issues of resource values, function, degradation, restoration, and use (DEM 1993).

Projects within ACEC boundaries require higher environmental standards and review. However, rather than creating new regulations, the goals of an ACEC designation are implemented through the existing state environmental regulatory and review framework. Specific state regulatory requirements concerning ACECs include: Massachusetts Environmental Policy Act (MEPA), Waterways Regulations (Chapter 91), Wetlands Protection Act, Solid Waste Facilities Site Assignment Regulations, and CZM policies. The designation also encourages coordination of local, regional, state, and federal programs, plans, and activities to achieve designation goals.

The 1979 Parker River/Essex Bay ACEC designation document (Appendix B) identifies the following factors to support designation:

Threat to the Public Health. The use of the rivers and bays for shellfishing, water sports, and fishing is dependent upon maintaining the existing high water quality. Any pollutants discharged into these waters could adversely affect their users and consumers.

Quality of the Natural Characteristics. Because there has been minimum alteration of the natural features of this area, they are presently functioning at their maximum capacity; the scenic quality of the area contributes to the recreational enjoyment of its visitors.

Productivity. This area's productivity is nearly double that of the most productive agricultural lands and can be attributed to the overall health of the ecosystem.

Uniqueness. There are only 10 major barrier beach systems on the Massachusetts mainland that remain undeveloped. This ACEC contains two; Castle Neck and the southern end of Plum Island. The importance of the area to migratory birds, its extensive shellfish resources, and vast salt marshes also contribute to its uniqueness.

Irreversibility of Impact. Man's destruction of estuaries, salt marsh, and barrier beaches is irreversible. Alteration of barrier beaches will result in the loss of a natural storm barrier, the destruction of marshland will decrease the nutrient supply in adjacent rivers and bays, and inappropriate development can pollute ground and surface water.

Economic Benefits. The natural resources of this ACEC contribute directly to the financial well-being of the region. The region is famous for shellfish resources as well as recreational activities that contribute directly to local economies.

Supporting Factors. Strong public consensus on the intrinsic value of the area weighs heavily in favor of the ACEC designation. The Parker River National Wildlife Refuge, Sandy Point State Reservation, and the Crane Wildlife Refuge and Beach all lend importance to the area. Local wetlands zoning by-laws, shellfish management programs, and conservation restrictions further demonstrate local efforts to protect the area.

All of these factors combined demonstrate that the Parker River/Essex Bay region is unique. The ecological, economic, and recreational values identified in 1979 as reason for ACEC protection still stand today, over 20 years later.

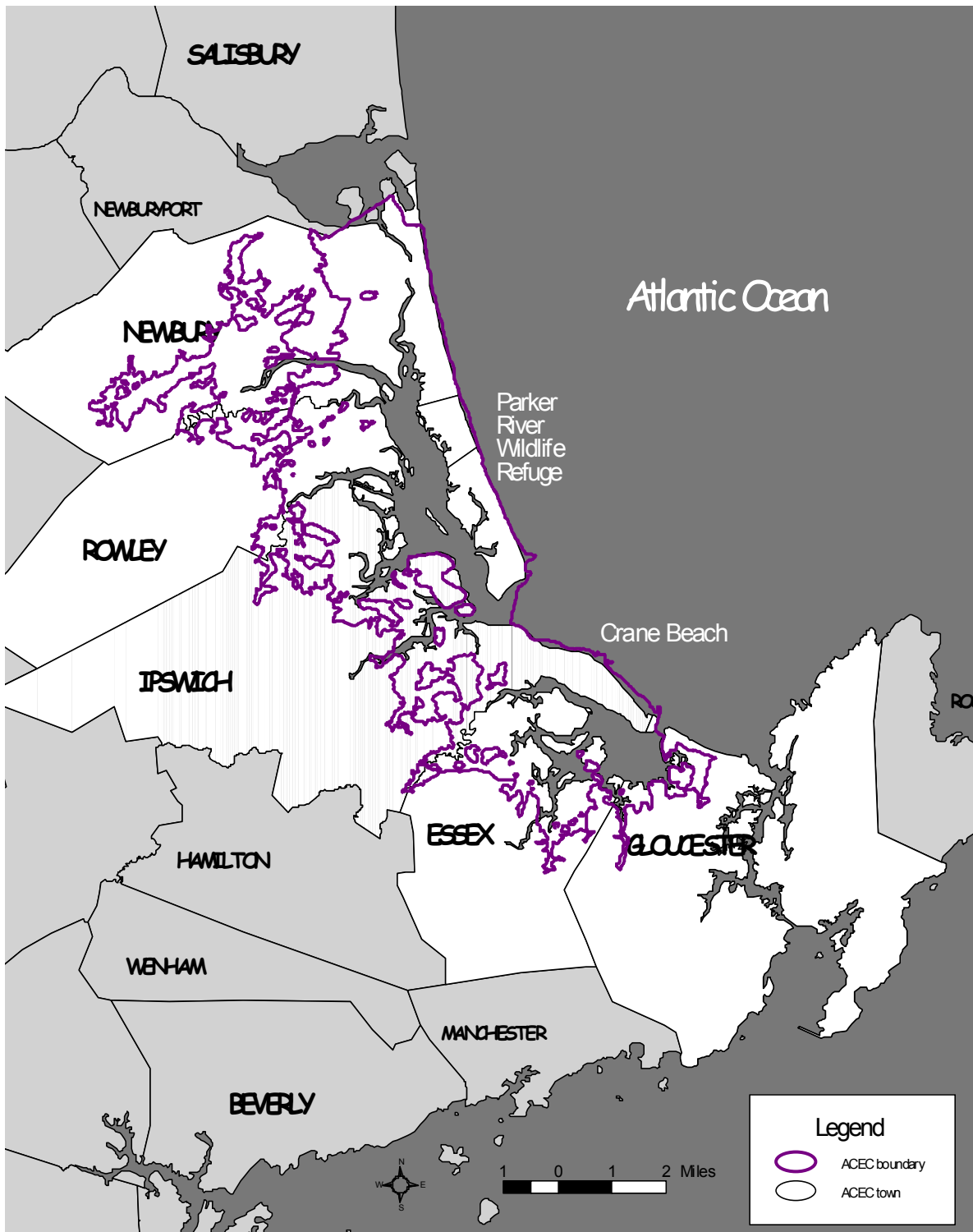


Figure 1. Parker River/Essex Bay ACEC boundary

## **REGIONAL HISTORY**

Salt marshes in the ACEC were a tremendous asset to early settlers and colonists of the seventeenth century (USFWS 1992). Open meadows filled with acres of marsh grass provided hay for insulation, roofing, and livestock feed and bedding. “It was not uncommon for a farmer living many miles inland to own or lease the rights to a piece of island salt marsh, and what hay he did not require for his own use could be sold” (Weare 1993). Some farmers, who lived further away from the marsh lots, built barns or small camps to provide shelter for themselves, their crews, and their animals during the haying season. For inland farmers without land access, the hay was brought home in barges known as gundalows (Weare 1993). In the late 1800s, the invention of the bog shoe made it possible for horses to be brought onto the marsh, and mowing machines and horse rakes soon took over much of the work done by hand. Eventually, tractors pulling mechanical hay balers were used to harvest salt hay. However in the 1930s, cutting of the salt marsh dramatically declined as local dairy farms’ demand for salt hay diminished. In 1965, five individuals harvested hay from the salt marshes from the ACEC (Jerome et al. 1968) while today, only three people still regularly hay in the marsh around Plum Island Sound (Buchsbaum per comm 1999)

### **PLUM ISLAND SOUND**

The barrier island with sand dunes and salt marsh recognized today as Plum Island is believed to have started as a sandspit over 6,000 years ago (Weare 1993). The first description of Plum Island and the Sound came from the explorer John Smith in 1614 who indicated the marsh grass was fit for pasture, with, “...pines, walnuts, and other woods to make this place an excellent habitation, being a good and safe harbour” (USFWS 1992). In 1649, the General Court divided Plum Island among the townships of Newbury, Rowley, and Ipswich. For the first 150 years of settlement in these towns, the marshes and meadows of Plum Island were treated primarily as a resource for grazing of hogs, cattle, horses, and sheep (USFWS 1992, Weare 1993). The salt hay was also used for bedding and mulching and as housing insulation. Eventually this unrestricted grazing took a toll on the marsh, and in 1739 the General Court passed an act declaring it unlawful for livestock to roam free on the island (USFWS 1992). During the 1800s and early 1900s, the southern portion of Plum Island contained cottages, farms, some hotels, waterfowl hunting camps, and fishing camps scattered throughout the salt marsh. In the early 1900s, Plum Island became a vacation destination as hotels, regularly scheduled ferries, and even a casino were established (Weare 1993). When development of the northern end of Plum Island threatened to spread south, the Massachusetts Audubon Society and the Federation of Bird Clubs of New England purchased approximately 1,600 acres on the central section of the island. In 1942, this land was purchased by the U.S. Fish and Wildlife Service to form the Parker River National Wildlife Refuge, which currently includes a total of 4,662 acres. Approximately 120 acres of privately owned land at the southern tip of the island was acquired by the Commonwealth of Massachusetts and became Sandy Point State Reservation managed by the Department of Environmental Management (USFWS 1992).

### **ESSEX BAY**

In 1634, the area around Essex Bay was settled as Chebacco Parish by Europeans who made their living by farming and fishing. Although much of the land could not match England’s fertile soil, it could still support grains, vegetables, and the farming practices brought by colonists. Winters were more severe than settlers had previously known and livestock that were used to spending

almost the entire year in pasture were now penned up four to five months. Fishermen were another group of Europeans drawn to the coast to make a living. Abundant cod and herring, which had long been popular in the European diet, were a profitable export commodity. Many men of Ipswich and the Chebacco Parish engaged in fishing on the eastern shore of Cape Ann until 1812, when impacts of the revolutionary war and falling prices caused a decline in the fishing industry (Vickers 1994).

Although farming and fishing have always been important parts of the regional economy, historic shipbuilding is what made the Essex area unique from other parts of the region. With growth of the local shipbuilding industry in the early 1800s, most fishermen left the sea for more comfortable work closer to home. In 1819, Ipswich's Chebacco Parish was incorporated as the town of Essex and shipbuilding replaced fishing as the town's primary maritime industry (Vickers 1994). Shipbuilding was so popular that most lumber was already harvested from the area by this time and had to be imported from Maine, New Brunswick, and the Carolinas to continue making Essex vessels (Ellis-Peckham 2000). In 1821, the Essex Canal was built to enable the rafting of ship timber as well as general lumber supplies down the Merrimack River, into Plum Island Sound, through the canal, and into the Essex River. Before the canal was built, transport of New Hampshire timber had to go out into Ipswich Bay to reach the mouth of the Essex River. To construct the canal, a section of salt marsh was cut through to create passage from the Ipswich River near Fox Creek to the Essex River (Story 1995). In 1876, the Essex Branch of the Boston and Maine railroad was built to support the shipbuilding industry. In addition to shipyard supplies, the train brought tourists to visit the area until 1942 when this branch was discontinued (Story 1975). In 1880-1890, the shipbuilding industry peaked in Essex with the majority of vessels being built to support the Gloucester fishery. However, when diesel engines were invented in the early 1900s and more efficient trawlers began replacing the traditional fishing dories, the shipbuilding industry began to decline. After World War II with the advance of factories and use of steel to make cheaper and faster boats, demand for fishing boats fell off completely. Today only recreational yachts and lobster boats are still built in Essex, although the Essex Shipbuilding Museum still tell of the history (Ellis-Peckham 2000).